
S E M I N A R
on
Semiconductor Physics and Nanotechnology

Mo, 18.11.2024, 11:15 Uhr,

**Seminar in
person in the Physics lecture hall or via Zoom**

“Two-dimensional materials: From powder to device”

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The field of two-dimensional nanomaterials has exploded over the past two decades, driven by the isolation of graphene from graphite and the demonstration of its superlative properties, such as high carrier mobility, tensile strength, and thermal transport. Beyond graphene, there are over 5000 materials in the 2D family, which contain almost all the properties relevant to electronics, from conductors to dielectrics, thermoelectrics to piezoelectrics, and so on. The ability to synthesise and process these materials in solution allows us to apply similar techniques to the entire 2D family, produce 2D nanosheets at scale, and create networks of nanosheets that can be used as electronic devices using high throughput printing techniques. For such devices, the two-dimensional geometry of the nanosheets provides distinct advantages for printed devices compared to other materials with 1D and 0D geometries. In this presentation, I will discuss state-of-the-art solution-processing techniques, covering various exfoliation techniques, techniques for sorting nanosheets by length and thickness, the requirements for creating high performance networks of nanosheets, the benefits of the 2D geometry, and a range of electronic applications.

Zoom – Link:

<https://zoom.us/j/96375934537?pwd=RTIKTWWhSdzRHU211YTY1bGFxTUtpZz09>

Meeting-ID: 963 7593 4537

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